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Boris Hessen. Les racines sociales et économiques des Principiade Newton: Une rencontre entre Newton et Marx à Londres en 1931.

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logical aspect of scientific production is analyzed exclusively from the point of view of the “web of relationships” (“*tessere relazioni*,” in the original Italian) among individuals or groups of elite scientists, thus perpetuating an image of science as a private matter, the affair of a restricted circle or group of powerful individuals, and not as a collective activity (social and public) with a life of its own, independent of its individual producers. I would not deny the importance of networks of personal relationships and the weight of academic, institutional opportunisms and personal/collective negotiations, yet the volume fails to cast light on a vital question: Can this specific focus sufficiently address the sociological aspect of scientific production?

Nevertheless, *Storia, scienza e società* is worth our attention. It presents unpublished documents (for instance, two interesting requests for consultation, dated 1689, addressed to the physician Marcello Malpighi) and original or updated databases that will surely stimulate further investigations.

ANGELA BANDINELLI

Boris Hessen. *Les racines sociales et économiques des Principia de Newton: Une rencontre entre Newton et Marx à Londres en 1931.* Translated with commentary by **Serge Guérout**. Postscript by **Christopher Chilvers**. vi + 228 pp., illus., bibl., index. Paris: Vuibert, 2006. €30 (paper).

Few historical interpretations are as notorious as Boris Hessen's “The Social and Economic Roots of Newton's *Principia*,” first presented at the Second International Congress of the History of Science and Technology in London in 1931. Hessen's bold attempt at a Marxist analysis of the most celebrated achievement of Western science has become such a hallmark that it is often simply referred to as the “Hessen thesis.” But because of its reputation as *the* exemplar of Marxist historiography, the paper is today more often referred to than actually read, and this is why Serge Guérout has ventured a republication. He translated the original into French (for the first time ever), added an introduction and annotations, and invited Christopher Chilvers to write a postscript. *Les racines sociales et économiques des Principia de Newton: Une rencontre entre Newton et Marx à Londres en 1931* provides a fresh look at Hessen's paper, which differs greatly from the way in which it is commonly remembered.

The standard reading of Hessen's paper is that it was a “crude” attempt to reduce Newton's *Principia* to nothing but a response to the technological needs of his time. From the start, this

has been the view of Hessen's detractors, most notably A. Rupert Hall, as well as his admirers, such as J. D. Bernal, who would follow this model in his own historical work. To some extent this reading is correct. Hessen did indeed devote the largest section of his paper to pointing out how the *Principia* was meant to serve as the foundation of the sciences that dealt with practical problems: mechanics, ballistics, hydrostatics, and so forth. But elsewhere Hessen departed from the technological determinism for which his paper is known. For example, in the third section, on Newton's world picture, he made no reference to any technical needs. Instead, his explanation rested on the *worldviews* that, he argued, had become dominant in late seventeenth-century England. Hessen believed that when the interests of the landed gentry became aligned with those of the rising merchant class during the Glorious Revolution their ideologies merged, wedding the prevailing Christian outlook to a mechanistic worldview. It was this marriage of ideologies, he contended, that was reflected in Newton's view of the universe as governed by both mechanical causes and divine intervention. While this part of the analysis is still Marxist, it is explicitly not technologically reductionist. Hessen regarded the sciences not just as a productive force, but also as an ideology—or, in Marxist terms, as belonging to both base and superstructure. As Chilvers points out in the postscript, the dual role that Hessen assigned to the sciences characterized his dialectical approach. His paper, then, is far richer than its standard reputation suggests—and far more interesting as an example of Marxist historiography.

Guérout's book rightly views Hessen's article as a historical source as well as a historiographical specimen. Here, too, the scope of “The Social and Economic Roots of Newton's *Principia*” is larger than the received view suggests. While the article is remembered mainly as an “eye-opener” for young British radicals, including Bernal and Joseph Needham, its significance becomes profoundly more dramatic when it is considered within the broader political context in which it was written and read. As a prominent spokesperson for the sciences in the Soviet Union, Hessen was under enormous pressure in 1931. He had been an outspoken defender of Einstein's relativity theory and the new quantum mechanics at a time when Soviet ideologues increasingly regarded abstract theorizing as “Menshevist idealism,” a decadent bourgeois pastime. Three months before the London conference, Hessen had been publicly warned to change his tune by Arnost Kolman, one of Sta-

lin's new watchdogs who was then sent along to London to police the activities of the Soviet delegates. It was under these constraints that Hessen wrote his paper. He chose Newton's *Principia* as an uncontroversial precedent of abstract mathematical physics, aiming to show that it was deeply relevant to contemporary material needs and that Newton's worldview directly reflected the concerns of his class. Hessen's point was that abstract science need not be merely the product of bourgeois idealism; it could serve the needs of any class, including the proletariat. Initially, Hessen's account seemed to have worked in assuaging concerns about his loyalty to the communist cause, since he received no more threats for the next few years. But when Stalin tightened his grip at the end of 1934 the accusations resumed, probably again via Kolman. In 1936 Hessen was arrested, "tried," tortured, and finally shot, becoming one of the first victims of Stalin's Great Terror. Years later, Needham recollected how "delighted" he had been to meet Kolman, one of the Soviet delegates who had shown him the political significance of the history of science, for a second time in 1965. But Kolman had known that political significance all too well—as had Boris Hessen.

Guérout's new edition rightly stresses these wider historical and historiographical dimensions. His translation and the accompanying texts are a timely invitation to take a fresh look at Hessen's famous paper.

GEERT SOMSEN

Othmar Keel. *L'avènement de la médecine clinique moderne en Europe, 1750–1815: Politiques, institutions et savoirs.* (Bibliothèque d'Histoire de la Médecine et de la Santé.) 542 pp., bibl., index. Montreal: Les Presses de l'Université de Montréal, 2001. \$59.95 (cloth).

For more than thirty years Othmar Keel has questioned the traditional history of the Paris Clinical School of the early nineteenth century. The established view appeared in the classic history by Erwin Ackerknecht, *Medicine at the Paris Hospital, 1794–1848* (Johns Hopkins, 1967), and in Michel Foucault's *Naissance de la clinique* (Presses Univ. France, 1963). For these authors, the Paris school was the linchpin of the major transition from "bedside" to "hospital" medicine and from a humoral theory of disease featuring observation of symptoms to a localized concept of disease based on the evidence of dissections and pathological anatomy. Foucault attributed to Xavier Bichat a highly significant role in changing the medical gaze from the ex-

ternal to the internal and in advancing the study of lesions in cadavers.

Urged by one of his mentors, Georges Canguilhem, to compare clinical medicine in France and Austria, and inspired by the work of Erna Lesky on the Vienna Clinical School, Keel eventually directed much of his comparative study to the rise of pathological anatomy in Britain. In particular, he found sensational evidence that Philippe Pinel, a proponent of a nosological approach based on pathological anatomy, had plagiarized the Scottish physician James Carmichael Smyth (*La généalogie de l'histopathologie: Une révision déchirante: Philippe Pinel, lecteur discret de J.-C. Smyth [1741–1821]* [Vrin, 1979]). The present comprehensive work aspires to hammer nails into the coffin of the interpretation asserting the unique importance of the Paris Clinical School.

On the whole, Keel builds an impressive case that clinical medicine and pathological anatomy both arose in medical milieus all over Europe at least from about 1750. Certainly the book is noteworthy for its scholarly range and linguistic virtuosity. The conclusion is that the French Revolution, despite its amalgamation of medicine and surgery in France, was not the necessary catalyst for significant change in medical concepts and practices. While Keel does not provide an alternate explanation as to why this transition occurred earlier, he aggressively refutes any special status for Paris.

The first part of *L'avènement de la médecine clinique moderne en Europe, 1750–1815*, seeks to demolish Foucault's view that eighteenth-century clinical instruction was merely "proto-clinical"—a theater of species of disease. He shows, like Toby Gelfand, that even in France itself surgical institutions and several Paris hospitals contributed to the "gestation of the clinic." Yet he criticizes Gelfand for confining the account to France. Keel asserts that Edinburgh and Vienna, as well as an assortment of institutions in London, Berlin, and Italy, were significant sites both for the emergence of the clinical approach and for the "anatomy-localist" view of illness. Military hospitals in Britain and France, with their captive populations of the wounded, provided another clinical arena. In short, there was no discontinuity between mid-eighteenth-century and early nineteenth-century clinical instruction.

The second part of the book, on the origin of concepts and techniques, shows that, long before the eminence of the Paris school was established, there were pioneers elsewhere in the physical examination of patients, palpation, and percussion. Keel's principal goal here seems to